

REMARKS

The Final Office Action mailed December 19, 2006 has been carefully considered.

Reconsideration in view of the following remarks is respectfully requested.

Claims 1-206 are pending.

No claims are allowed.

Claims 1, 45, 89, 133, 147, 165, 175, 180, 188, and 193 have been amended to further particularly point out and distinctly claim subject matter regarded as the invention. Support for these changes may be found in the specification, pp. 5-86 and FIGS. 1-25. The text of claims 2-9, 46-53, 90-97, 134-141, 148-150, 166-173, 176, 181, 189, and 194 is unchanged, but their meaning is changed because they depend from amended claims.

Claims 197-206

As an initial matter, the Applicants note that Claims 197-206 were not mentioned in the last Office Action.¹ According to the M.P.E.P.,

In every Office action, each pending claim should be mentioned by number, and its treatment or status given. Since a claim retains its original numeral throughout the prosecution of the application, its history through successive actions is thus easily traceable. Each action should include a summary of the status of all claims presented for examination.²

Considering that the Examiner has not provided any comments or rebuttal to Applicant's argument, it can be assumed that the Examiner agrees to Applicants arguments and that Claims 197-206 are allowable.³

¹ Office Action mailed December 19, 2006.

² M.P.E.P § 707.07(i).

³ *In re Herrmann*, 261 F.2d 598 (CCPA 1958) (The court noted that since applicant's arguments were not questioned by the examiner, the court was constrained to accept the arguments at face value and thus held the claims to be allowable); *See In re Soni*, 54 F.3d 746 (Fed. Cir. 1995).

The 35 U.S.C. § 112, First Paragraph Rejection

Claims 1-9, 89-97, and 133-141 were rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was allegedly not described in the specification in such a way as to enable one of ordinary skill in the art to practice the invention.⁴

The Examiner states:

Claims 1-9, 89-97, and 133-141 are rejected under the first paragraph of 35 U.S.C. 112 because Claim 1 in Lines 7-8, Claim 89 in Lines 8-9, and Claim 133 in Lines 8 all recite "said input vector provided by a user of said wireless user device". Said added feature is not supported by the specification because a user provides keywords and keywords are then converted to vectors. User does not provide input vectors.⁵

With this Amendment, independent claims 1, 45, 89, 133, and 165 have been amended to recite in part "said input keyword string provided by a user of said wireless user device," rendering the rejection under 35 U.S.C. § 112, First Paragraph moot. The rejection of Claims 2-9, 90-97, and 134-141 was based on their dependency on rejected independent claims 1, 89, and 133. Claims 1, 89, and 133 being allowable, the dependent claims must also be allowable.

The First 35 U.S.C. § 103 Rejection

Claims 1, 2, 10, 13, 16-18, 21, 24-29, 32, 35-37, 40, 43, 45, 46, 54, 57, 60-62, 65, 68-73, 76, 79-81, 84, 87-90, 98, 101, 104, 105, 106, 109, 112, 114-117, 120, 123-125, 128, 131, 133, 134, 142, 145-147, 150-156, 159, 160, 163, 165, 166, 174, 177-179, 182, 183-187, 190-192, and 195 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Li⁶ in view of Welch,⁷ among which claims 1, 10, 13, 17, 18, 21, 25, 28, 29, 32, 36, 37, 40, 45, 54, 57, 61, 62,

⁴ Office Action mailed December 19, 2006, ¶ 5.

⁵ Office Action at ¶ 5.

⁶ U.S. Patent No. 5,774,588 to Li.

⁷ U.S. Patent Publication No. 2004/0097246 to Welch.

65, 69, 72, 73, 76, 80, 81, 84, 88, 89, 98, 101, 105, 106, 109, 116, 117, 120, 124, 125, 128, 133, 142, 146, 147, 151, 154, 155, 159, 160, 165, 174, 178, 179, 183, 186, 187, 191, and 192 are independent claims. This rejection is respectfully traversed.

According to the Manual of Patent Examining Procedure (M.P.E.P.),

To establish a *prima facie* case of obviousness, three basic criteria must be met. First there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the applicant's disclosure.⁸

Li In View Of Welch Does Not Teach Or Suggest Creating On A Wireless User Device A Keyword String Database Having One Or More Bit Vectors And A Reference To One Or More Candidate Keyword Strings

Claim 1 as presently amended recites:

A method for creating a keyword string database on a wireless user device, the method comprising:
determining one or more candidate keyword strings to store in said database;
creating one or more bit vectors based at least in part on said one or more candidate keyword strings, said one or more bit vectors for use in comparing an input bit vector with said one or more bit vectors to indicate whether an input keyword string represented by said input bit vector matches said one or more candidate keyword strings, said input vector keyword string provided by a user of said wireless user device; and
storing said one or more bit vectors and a reference to said one or more candidate keyword strings in said database.

The Examiner states:

... Li is directed to a method for creating a keyword string database (Li, Column 6 Line 10-21, i.e., A Lexicon and An example of such a lexicon would be a list of city names in the United States, which could contain about 45,000 valid entries.), and teaches the limitations: "determining one or more candidate keyword strings to store in said database (Li, Column 6 Line 40-50, i.e. "valid lexicon strings (such as legal and correct city names)."); "creating one or more bit vectors based at least in part on said one or more candidate keyword strings" (Li, Column 6 Line 40

⁸ M.P.E.P. § 2143.

through Column 9 Line 35), said one or more bit vectors for use in comparing an input bit vector with said one or more bit vectors to indicate whether an input keyword string represented by said input bit vector matches said one or more candidate keyword strings" (Li, Column 9 Line 39 through Column 13 Line 62); and "storing said one or more bit vectors" (Li, Column 7, Line 1-3, i.e., Signature Vector") and "a reference to said one or more candidate keyword strings in said database" (Li, Figure 2, Store pointers to Lexicon Entries in Bucket Address Table 240). Li does not explicitly teach the limitations: "a method for creating a keyword string database on a wireless user device". On the other hand, Welch is directed to "a method for creating a keyword string database on a wireless user device" (Welch, Paragraph 0026, i.e., In further embodiments, the broadcast media receiver 10 and/or the wireless terminal 20 are configured to determine whether one or more keywords or other criteria are present in the textual data; Figure 1: 20; Paragraph 0025, i.e., In other embodiments, the user may store the textual data in the wireless terminal 20 for future reference; and Paragraph 0026, i.e., In some embodiments, the textual data may be searched for the name of a television show, a person's name, a telephone number or logical network address, a text string that may be identified by a user, program instruction, and/or software code) and teaches the limitations: At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the method of Welch, which creates keyword string database on a wireless user device, with the method of Li, which determines keywords, creates bit vectors, and stores said bit vectors and references to said key words, so that the combined method would create a keyword string database on a wireless user device and determine keywords, create bit vectors, stores said bit vectors and references to said keywords. One would have been motivated to do so in order to enable users to store the textual data on a wireless device and search said textual data using keywords (Welch, Paragraphs 0025-0026).⁹

The Applicant respectfully disagrees. Contrary to the Examiner's statement, Welch is not directed to directed to a method for creating a keyword string database on a wireless user device as required by Claim 1. In support of the Examiner's statement, the Examiner refers to the following portion of Welch:

[0025] In other embodiments, the user may store the textual data in the wireless terminal 20 for future reference. The wireless terminal 20 may be configured to allow the user to forward the textual data to other devices, including another wireless terminal, a telephone, and/or a computer. In some embodiments, the textual data may be forwarded via an internet mail service and/or via a cellular short message service (SMS).¹⁰

⁹ Office Action at pp. 3-5.

¹⁰ Welch at ¶ 25.

[0026] In further embodiments, the broadcast media receiver 10 and/or the wireless terminal 20 are configured to determine whether one or more keywords or other criteria are present in the textual data. In some embodiments, the textual data may be searched for the name of a television show, a person's name, a telephone number or logical network address, a text string that may be defined by a user, program instruction, and/or software code. When the broadcast media receiver 10 performs the search, the textual data may be transmitted to the wireless terminal 20 in response to finding the searched term or criteria in the textual data.¹¹

Thus, Welch discloses storing on a wireless terminal textual data that is present in a broadcast signal. Whereas Claim 1 requires storing in the keyword database (1) one or more bit vectors and (2) a reference to one or more candidate keyword strings. As Welch says nothing about a keyword string database containing both one or more bit vectors and a reference to one or more candidate strings, Li in view of Welch cannot be said to disclose creating a keyword string database on a wireless user device as required by Claim 1. For this reason, the 35 U.S.C. § 103(a) rejection of Claim 1 based on Li in view of Welch is unsupported by the art. Thus, a prima facie case of obviousness has not been established and the rejection must be withdrawn.

No Teaching Or Suggestion To Combine Li and Welch

In support of the Examiner's contention regarding a purported motivation to combine Li with Welch, the Examiner states that "[o]ne would have been motivated to do so in order to enable users to store the textual data on a wireless device and search said textual data using keywords (Welch, Paragraphs 0025-0026)."¹² However, as pointed out by the Examiner, Welch recites in part "the broadcast media receiver 10 and/or the wireless terminal 20 are configured to determine whether one or more keywords or other criteria are present in the textual data."¹³ As Welch by itself disclosed storing textual data on a wireless device and searching the textual data

¹¹ Welch at ¶ 26.

¹² Office Action at p. 5.

¹³ Welch at ¶ 26.

using keywords, such disclosure cannot form the basis for combining Welch with another reference. For this additional reason, a prima facie case of obviousness has not been established and the 35 U.S.C. § 103(a) rejection of Claim 1 based on Li in view of Welch must be withdrawn.

· Claim 2

Claim 2 recites:

The method of claim 1 wherein said bit vector further comprises at least one bit that represents a non-alphanumeric symbol.

The Examiner states:

... "wherein said bit vector further comprises at least one bit that represents a non-alphanumeric symbol" (Li, Column 6 Line 43-47, i.e. All lower case letters were mapped to their upper case letters, all between word spaces are stripped, and all nonalphanumeric characters are mapped to a selected specific non-alphanumeric characters (for example, "?")). It is inherent that those non-alphanumeric will be represented in the signature vector, which represents the original string. (Li, Column 7, Line 1-3, i.e., Signature Vector).

As stated previously in the Applicant's Response mailed October 10, 2006, the Applicant respectfully disagrees with the Examiner's statement that Li inherently disclosed wherein said bit vector further comprises at least one bit that represents a non-alphanumeric symbol. The Applicant respectfully submits that such conclusory allegations regarding the alleged inherency of the teachings are improper. According to the MPEP,¹⁴ an Examiner must provide a rationale or evidence tending to show inherency. The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic.¹⁵ Furthermore, "In relying upon the theory of inherency, the Examiner must

¹⁴ MPEP § 2112.

¹⁵ MPEP § 2112.

provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.”¹⁶

The Applicant respectfully suggests that the Examiner has failed to provide a basis in fact and/or technical reasoning to reasonably support the determination that wherein said bit vector further comprises at least one bit that represents a non-alphanumeric symbol necessarily flows from the teachings of Li.

Considering that the Examiner has not provided any comments or rebuttal to Applicant’s argument, but only restated prior rejections, it can be assumed that the Examiner agrees to Applicants arguments and that Claim 2 is allowable.¹⁷

Claim 10

Claim 10 recites:

A method for incremental keyword search on a wireless user device, the method comprising:
submitting to said wireless user device an input keyword string comprising one or more words comprising one or more symbols; and
receiving in response to said submitting at least one candidate keyword string having a bit vector that matches a bit vector of said input keyword string.

The Examiner states:

... Welch in view of Li is directed to "a method for incremental keyword search on a wireless user device" (Welch, Paragraph 0026, i.e., In further embodiments, the broadcast media receiver 10 and/or the wireless terminal 20 are configured to determine whether one or more keywords or other criteria are present in the textual data; Figure 1: 20) and teaches the limitations: "submitting an input keyword string comprising one or more words comprising one or more symbols"

¹⁶ *Ex parte Levy*, 17 USPQ2d 1461 (Bd. Pat. App. & Inter. 1990) (emphasis in original).

¹⁷ *In re Herrmann*, 261 F.2d 598 (CCPA 1958) (The court noted that since applicant’s arguments were not questioned by the examiner, the court was constrained to accept the arguments at face value and thus held the claims to be allowable); *See In re Soni*, 54 F.3d 746 (Fed. Cir. 1995).

(Li, Column 6 Line 10-21 and Column 8 Line 51 through Column 13 Line 62);
and "receiving in response to said submitting at least one candidate keyword
string having a bit vector that matches a bit vector of said input keyword string"
(Li, Column 6 Line 10-21 and Column 8 Line 51 through Column 13 Line 62).

The Arguments made above with respect to Claim 1 apply here as well. The Examiner has not
provided a proper motivation for the combination of Li with Welch. Thus, a prima facie case of
obviousness has not been established and the 35 U.S.C. § 103(a) rejection of Claim 10 based on
Li in view of Welch must be withdrawn.

Claim 13

Claim 13 recites:

A method for incremental keyword search on a wireless user device, the method
comprising:
receiving from a user of said wireless user device an input keyword string
comprising one or more words comprising one or more symbols;
creating a bit vector based at least in part on said input keyword string;
comparing said bit vector with one or more other bit vectors representing at least
one candidate keyword string to create a set of matching bit vectors;
applying a conventional keyword matching algorithm to said at least one
candidate keyword string represented by said set of matching bit vectors; and
presenting any matching candidate keyword strings.

The Examiner states:

... Welch in view of Li is directed to "a method for incremental keyword search on
a wireless user device" (Welch, Paragraph 0026, i.e., In further embodiments, the
broadcast media receiver 10 and/or the wireless terminal 20 are configured to
determine whether one or more keywords or other criteria are present in the
textual data; Figure 1: 20) and teaches the limitations: "receiving an input
keyword string comprising one or more words comprising one or more symbols"
(Li, Column 6 Line 10-21, Column 6 Line 40 through Column 9 Line 35);
"creating a bit vector based at least in part on said input keyword string" (Li,
Column 8 Line 51 through Column 9 Line 58); "comparing said bit vector with
one or more other bit vectors representing at least one candidate keyword string to
create a set of matching bit vectors" (Li, Column 8 Line 51 through Column 9
Line 36); "applying a conventional keyword matching algorithm" ("comparing
vectors") to said at least one candidate keyword string represented by said set of
matching bit vectors (Li, Column 9 Line 58 through Column 13 Line 62) ; and

"presenting any matching candidate keyword strings" (Li, Figure 2, "Output FinalCandidate List" 155).

The Arguments made above with respect to Claim 1 apply here as well. The Examiner has not provided a proper motivation for the combination of Li with Welch. Thus, a prima facie case of obviousness has not been established and the 35 U.S.C. § 103(a) rejection of Claim 13 based on Li in view of Welch must be withdrawn.

Claim 16

Claim 16 recites:

The method of claim 13 wherein said comparing is independent of the order of keyword prefixes in keyword strings.

The Examiner states:

... Welch in view of Li is directed the method of claim 13 and teaches the limitation:

"wherein said comparing is independent of the order of keyword prefixes in keyword strings" (Li, Column 8 50 through Column 9 Line 59). Note that, in the method and system of Li, between-word spaces in input strings are stripped (Column 6 Line 4050), said input strings are partitioned and hashed, then formed into bi-gram bit vectors and finally transformed into a signature vector (Li, Column 6, Line 40 through Column 7 Line 3). As such, the method of Li is capable of comparing input string independent of the order of keyword prefixes.¹⁸

The Applicant respectfully submits that the Examiner's attempt to equate "wherein said comparing *is* independent of the order of keyword prefixes in keyword strings" with "*capable of* comparing input string independent of the order of keyword prefixes" (emphasis added) is improper. The Examiner is reminded that the mere absence from a reference of an explicit requirement of a claim cannot be reasonably construed as an affirmative statement that the requirement is in the reference.¹⁹ For this additional reason, a prima facie case of obviousness

¹⁸ Office Action at p. 7.

¹⁹ *In re Evanega*, 829 F.2d 1110, 4 USPQ2d 1249 (Fed. Cir. 1987).

has not been established and the 35 U.S.C. § 103(a) rejection of Claim 16 based on Li in view of Welch must be withdrawn.

Claim 17

Claim 17 recites:

A method for creating a keyword string database on a wireless user device, the method comprising:
determining one or more candidate keyword strings to store in said database;
creating one or more bit vectors based at least in part on said one or more candidate keyword strings, said bit vector having a bit position for each symbol in an alphabet and having bits set for bit positions corresponding to at least one symbol representing the first symbol of a word in said one or more candidate keyword strings, said one or more bit vectors for use in comparing an input bit vector with said one or more bit vectors to indicate whether an input keyword string represented by said input bit vector matches said one or more candidate keyword strings; and
storing said one or more bit vectors and a reference to said one or more candidate keyword strings in said database.

The Arguments made above with respect to Claim 1 apply here as well. The Examiner has not provided a proper motivation for the combination of Li with Welch. And as Welch says nothing about a keyword string database storing both one or more bit vectors and a reference to one or more candidate keyword strings, Li in view of Welch cannot be said to disclose storing said one or more bit vectors and a reference to said one or more candidate keyword strings in said database on a wireless user device as required by Claim 17. Thus, a prima facie case of obviousness has not been established and the 35 U.S.C. § 103(a) rejection of Claim 17 based on Li in view of Welch must be withdrawn.

Claim 18

The arguments made above with respect to Claims 10 and 17 apply here as well. Claims 10 and 17 being allowable. Claim 18 must also be allowable for at least the same reasons.

Claim 21

Claim 21 recites:

A method for incremental keyword search on a wireless user device, the method comprising:
receiving from a user of said wireless user device an input keyword string comprising one or more words comprising one or more symbols;
creating a bit vector based at least in part on said input keyword string, said bit vector having a bit position for each symbol in an alphabet and having bits set for positions corresponding to at least one symbol representing the first symbol of a word in said input keyword string;
comparing said bit vector with one or more other bit vectors representing at least one candidate keyword string to create a set of matching bit vectors;
applying a conventional keyword matching algorithm to said at least one candidate keyword string represented by said set of matching bit vectors; and
presenting any matching candidate keyword strings.

The Examiner states:

... Welch in view of Li is directed to "a method for incremental keyword search on a wireless user device" (Welch, Paragraph 0026, i.e., In further embodiments, the broadcast media receiver 10 and/or the wireless terminal 20 are configured to determine whether one or more keywords or other criteria are present in the textual data; Figure 1: 20) and teaches the limitations: "receiving an input keyword string comprising one or more words comprising one or more symbols" (Li, Column 6 Line 10-21, Column 6 Line 40 through Column 9 Line 35); "creating a bit vector based at least in part on said input keyword string" (Li, Column 6 Line 40 through Column 9 Line 35), "said bit vector having a bit position for each symbol in an alphabet and having bits set for positions corresponding to at least one symbol representing the first symbol of a word in said input keyword string" (Li, Column 6 Line 40 through Column 9 Line 35); "comparing said bit vector with one or more other bit vectors representing at least one candidate keyword string to create a set of matching bit vectors" (Li, Column 8 Line 51 through Column 9 Line 36); "applying a conventional keyword matching algorithm to said at least one candidate keyword string represented by said set of matching bit vectors" (Li, Column 9 Line 58 through Column 13 Line

62); and "presenting any matching candidate keyword strings" (Li, Figure 2, "Output FinalCandidate List" 155).²⁰

The Arguments made above with respect to Claim 1 apply here as well. The Examiner has not provided a proper motivation for the combination of Li with Welch. Thus, a prima facie case of obviousness has not been established and the 35 U.S.C. § 103(a) rejection of Claim 13 based on Li in view of Welch must be withdrawn.

Claim 24

Claim 24 includes limitations similar to Claim 16. Claim 16 being allowable, Claim 24 must be allowable for at least the same reasons.

Claim 25

Claim 25 recites:

A method for comparing keyword strings on a wireless user device, the method comprising:
determining a relative frequency of use for at least one symbol in a language;
assigning a statistical weighting to said at least one symbol based at least in part on a relative frequency of use of said at least one symbol;
assigning each of said at least one symbol to one of a plurality of groups; and
comparing a first keyword string and a second keyword string based at least in part on whether at least one symbol of said first keyword string is assigned to the same group as at least one corresponding symbol of said second keyword string.

The Examiner states:

... Welch in view of Li is directed to "a method for comparing keyword strings on a wireless user device" (Welch, Paragraph 0026, i.e., In further embodiments, the broadcast media receiver 10 and/or the wireless terminal 20 are configured to determine whether one or more keywords or other criteria are present in the textual data; Figure 1: 20) and teaches the limitations: "determining a relative frequency of use for at least one symbol in a language (Li, Column 7 Line 4-40, i.e. "frequency table"); "assigning a statistical weighting" (A counter is accumulated ...) "to said at least one symbol based at least in part on a relative

²⁰ Office Action at p. 9.

frequency of use of said at least one symbol" (Li, Column 7 Line 4-40); 'assigning each of said at least one symbol to one of a plurality of groups" (Li, Column 7 Line 4-40, "first group"); and "comparing a first keyword string and a second keyword string based at least in part on whether at least one symbol of said first keyword string is assigned to the same group as at least one corresponding symbol of said second keyword string" (Li, Column 8 Line 51 through Column 9 Line 36).²¹

The Applicant respectfully disagrees. Contrary to the Examiner's statement, the cited references do not disclose or suggest determining a relative frequency of use for at least one symbol in a language. In support of the Examiner's contention, the Examiner refers to portions of Li that disclose accumulating a counter for each of 85 bits in a signature vector based on the presence of particular bi-grams in lexicon strings. A bi-gram vector based on the English language alphabet would have bits representing the character *combinations* AA, AB, AC, AD . . . ZW, ZX, ZY, ZZ, for a total of 676 entries.²² The Applicant respectfully submits that the Examiner's attempt to equate a symbol in Claim 25 with a bi-gram disclosed by Li is improper, as the bi-gram of Li is a *combination* of characters. Thus, Li discloses determining the frequency of a combination of characters; Li does not disclose determining a relative frequency of use for at least one *symbol* in a language. For this reason, the 35 U.S.C. § 103(a) rejection of Claim 25 based on Li in view of Welch is unsupported by the art.

Additionally, since Li does not disclose determining a relative frequency of use for at least one symbol in a language, Li cannot teach assigning a statistical weighting to said at least one symbol based at least in part on a relative frequency of use of said at least one symbol as required by Claim 25. For this additional reason, the 35 U.S.C. § 103(a) rejection of Claim 25 based on Li in view of Welch is unsupported by the art.

²¹ Office Action at p. 10.

²² Li at col. 2 ll. 3-6.

And since Li discloses analysis based on *bi-grams*, Li cannot be said to disclose assigning each of said at least one *symbol* to one of a plurality of groups. For this additional reason, the 35 U.S.C. § 103(a) rejection of Claim 25 based on Li in view of Welch is unsupported by the art. Thus, a prima facie case of obviousness has not been established and the rejection must be withdrawn.

Claim 26

Claim 26 recites:

The method of claim 25 wherein said assigning further comprises assigning each of said at least one symbol to one of a plurality of groups so as to minimize the difference between the sums of statistical weightings for symbols comprising each group in said plurality of groups.

The Examiner states:

... Welch in vie of Li is directed to the method of claim 25 and teaches the limitations: "wherein said assigning further comprises assigning each of said at least one symbol to one of a plurality of groups so as to minimize the difference between the sums of statistical weightings for symbols comprising each group in said plurality of groups" (Li, Column 7 Line 4-40, groups).²³

The Applicant respectfully disagrees. Contrary to the Examiner's statement, the cited references do not disclose or suggest wherein said assigning further comprises assigning each of said at least one symbol to one of a plurality of groups so as to minimize the difference between the sums of statistical weightings for symbols comprising each group in said plurality of groups. In support of the Examiner's contention, the Examiner refers to a portion of Li that discloses partitioning a signature vector into seven groups. But the disclosure in Li refers to bi-grams. Even if one were to equate bi-grams with symbols, nowhere does Li disclose or suggest assigning symbols in such a way as to minimize the difference between the sums of statistical weightings for symbols comprising each group in a plurality of groups. For this additional reason, the 35 U.S.C. § 103(a)

rejection of Claim 26 based on Li in view of Welch is unsupported by the art. Thus, a prima facie case of obviousness has not been established and the rejection must be withdrawn.

Claim 27

Claim 27 recites:

The method of claim 25 wherein said relative frequency of use comprises the relative frequency of use of symbols in the first character of words in said language.

The Examiner states:

... Welch in view of Li is directed to the method of claim 25 and teaches the limitation: "wherein said relative frequency of use comprises the relative frequency of use of symbols in the first character of words in said language" (Li, Column 7 Line 4-40).²⁴

The Applicant respectfully disagrees. Contrary to the Examiner's statement, the cited references do not disclose or suggest wherein said relative frequency of use comprises the relative frequency of use of symbols in the first character of words in said language. In support of the Examiner's contention, the Examiner refers to a portion of Li that discloses partitioning a signature vector into seven groups. But the disclosure in Li refers to bi-grams. And since Li describes a bi-gram as two characters, Li cannot disclose the limitations of Claim 27 because the result would be nonsensical. Substituting "bi-grams" for "symbols," the claim limitation reads "wherein said relative frequency of use comprises the relative frequency of bi-grams in the first character of words in said language," requiring the determination of the relative frequency of *two*-character sequences in *a* character. For this additional reason, the 35 U.S.C. § 103(a) rejection of Claim 27 based on Li in view of Welch is unsupported by the art. Thus, a prima facie case of obviousness has not been established and the rejection must be withdrawn.

²³ Office Action at p. 11.

Claim 28

Claim 28 recites:

A method for creating a keyword string database on a wireless user device, the method comprising:
determining one or more candidate keyword strings to store in said database;
creating one or more bit vectors based at least in part on said one or more candidate keyword strings, each bit of said one or more bit vectors corresponding to one or more symbols in an alphabet, bits having a bit position corresponding to the first symbol of a word in said one or more candidate keyword strings being set, said one or more bit vectors for use in comparing an input bit vector with said one or more bit vectors to indicate whether an input keyword string represented by said input bit vector matches said one or more candidate keyword strings; and
storing said one or more bit vectors and a reference to said one or more candidate keyword strings in said database.

The Examiner states:

... Welch in view of Li is directed to "a method for creating a keyword string database on a wireless user device" (Welch, Paragraph 0026, i.e., In further embodiments, the broadcast media receiver 10 and/or the wireless terminal 20 are configured to determine whether one or more keywords or other criteria are present in the textual data; Figure 1: 20), and teaches the limitations: "determining one or more candidate keyword strings to store in said database (Li, Column 6 Line 40-50, i.e., valid lexicon strings (such as legal and correct city names).....); "creating one or more bit vectors based at least in part on said one or more candidate keyword strings" (Li, Column 6 Line 40 through Column 9 Line 35), "each bit of said one or more bit vectors corresponding to one or more symbols in an alphabet, bits having a bit position corresponding to the first symbol of a word in said one or more candidate keyword strings being set" (Li, Column 6 Line 40 through Column 9 Line 35), "said one or more bit vectors for use in comparing an input bit vector with said one or more bit vectors to indicate whether an input keyword string represented by said input bit vector matches said one or more candidate keyword strings" (Li, Column 8 Line 51 through Column 9 Line 36); and "storing said one or more bit vectors and a reference to said one or more candidate keyword strings in said database" (Li, Column 7, Line 1-3 and Li, Figure 2, Store pointers to Lexicon Entries in Bucket Address Table 240).²⁵

²⁴ Office Action at p. 11.

²⁵ Office Action at pp. 11-12.

The Applicant respectfully disagrees. The arguments made above with respect to Claim 1 apply here as well. Claim 1 being allowable, Claim 28 must also be allowable for at least the same reasons.

Claim 29

Claim 29 recites:

A method for incremental keyword search on a wireless user device, the method comprising:
submitting to said wireless user device an input keyword string comprising one or more words comprising one or more symbols, each symbol representing the first symbol of a word in a search string; and
receiving in response to said submitting at least one candidate keyword string where the first symbol of each word in each candidate keyword string is comprised by a group comprising said one or more symbols.

The Examiner states:

... Welch in view of Li is directed to "a method for incremental keyword search on a wireless user device" (Welch, Paragraph 0026, i.e., In further embodiments, the broadcast media receiver 10 and/or the wireless terminal 20 are configured to determine whether one or more keywords or other criteria are present in the textual data; Figure 1: 20) and teaches the limitations: "submitting an input keyword string comprising one or more words comprising one or more symbols, each symbol representing the first symbol of a word in a search string" (Li, Column 6 Line 10-21, Column 6 Line 40 through Column 9 Line 35); and 'receiving in response to said submitting at least one candidate keyword string where the first symbol of each word in each candidate keyword string is comprised by a group comprising said one or more symbols" (Li, Column 8 Line 51 through Column 9Line 36).²⁶

The Applicant respectfully disagrees. The arguments made above with respect to Claim 18 apply here as well. Claim 18 being allowable, Claim 29 must also be allowable for at least the same reasons.

²⁶ Office Action at p. 12.

Claim 32

Claim 32 recites:

A method for incremental keyword search on a wireless user device, the method comprising:
 receiving from a user of said wireless user device an input keyword string comprising one or more words comprising one or more symbols, each symbol representing the first symbol of a word in a search string;
 creating a bit vector based at least in part on said input keyword string, each bit corresponding to one or more symbols in an alphabet, bits having a bit position corresponding to said one or more symbols being set;
 comparing said bit vector with one or more other bit vectors representing at least one candidate keyword string to create a set of matching bit vectors;
 applying a conventional keyword matching algorithm to said at least one candidate keyword string represented by said set of matching bit vectors; and
 presenting any matching candidate keyword strings.

The Examiner states:

... Welch in view of Li is directed to "a method for incremental keyword search on a wireless user device" (Welch, Paragraph 0026, i.e., In further embodiments, the broadcast media receiver 10 and/or the wireless terminal 20 are configured to determine whether one or more keywords or other criteria are present in the textual data; Figure 1: 20) and teaches the limitations: "receiving an input keyword string comprising one or more words comprising one or more symbols, each symbol representing the first symbol of a word in a search string" (Li, Column 6 Line 10-21, Column 6 Line 40 through Column 9 Line 35); "creating a bit vector based at least in part on said input keyword string, each bit corresponding to one or more symbols in an alphabet, bits having a bit position corresponding to said one or more symbols being set" (Li, Column 8 Line 51 through Column 9 Line 58); "comparing said bit vector with one or more other bit vectors representing at least one candidate keyword string to create a set of matching bit vectors" (Li, Column 8 Line 51 through Column 9 Line 36); "applying a conventional keyword matching algorithm to said at least one candidate keyword string represented by said set of matching bit vectors" (Li, Column 9 Line 58 through Column 13 Line 62); and "presenting any matching candidate keyword strings" (Li, Figure 2, "Output Final Candidate List" 155).²⁷

The Applicant respectfully disagrees. The arguments made above with respect to Claim 21 apply here as well. Claim 21 being allowable, Claim 29 must also be allowable for at least the same reasons.

²⁷ Office Action at p. 13.

Claim 35

Claim 35 includes limitations similar to Claim 16. Claim 16 being allowable, Claim 35 must also be allowable for at least the same reasons.

Claim 36

Claim 36 recites:

A method for creating a keyword string database on a wireless user device, the method comprising:
determining one or more candidate keyword strings to store in said database;
creating one or more bit vectors based at least in part on said one or more candidate keyword strings, each bit of said one or more bit vector corresponding to one or more symbols in an alphabet, bits having a bit position corresponding to a symbol of a prefix of a word in said one or more candidate keyword strings being set, said one or more bit vectors for use in comparing an input bit vector with said one or more bit vectors to indicate whether an input keyword string represented by said input bit vector matches said one or more candidate keyword strings; and
storing said one or more bit vectors and a reference to said one or more candidate keyword strings in said database.

The Examiner states:

... Welch in view of Li is directed to "a method for creating a keyword string database on a wireless user device" (Welch, Paragraph 0026, i.e., In further embodiments, the broadcast media receiver 10 and/or the wireless terminal 20 are configured to determine whether one or more keywords or other criteria are present in the textual data; Figure 1: 20) and teaches the limitations: "determining one or more candidate keyword strings to store in said database" (Li, Column 6 Line 40-50, i.e, valid lexicon strings (such as legal and correct city names).....); "creating one or more bit vectors based at least in part on said one or more candidate keyword strings" (Li, Column 6 Line 40 through Column 9 Line 35), "each bit of said one or more bit vector corresponding to one or more symbols in an alphabet, bits having a bit position corresponding to a symbol of a prefix of a word in said one or more candidate keyword strings being set" (Li, Column 6 Line 40 through Column 9 Line 35), "said one or more bit vectors for use in comparing an input bit vector with said one or more bit vectors to indicate whether an input keyword string represented by said input bit vector matches said one or more candidate keyword strings" (Li, Column 8 Line 51 through Column 9 Line 36); and "storing said one or more bit vectors and a reference to said one or more candidate keyword strings in said database" (Li, Column 7, Line 1-3, i.e.,

Signature Vector and Li, Figure 2: Store pointers to Lexicon Entries in Bucket Address Table 240).²⁸

The Applicant respectfully disagrees. The arguments made above with respect to Claim 28 apply here as well. Claim 28 being allowable, Claim 36 must also be allowable for at least the same reasons.

Claim 37

Claim 37 recites:

A method for incremental keyword search on a wireless user device, the method comprising:
submitting an input keyword string comprising one or more words comprising one or more symbols; and
receiving in response to said submitting at least one candidate keyword string where a prefix of a word of a matching candidate keyword string comprises at least one symbol that belongs to the same symbol group as the corresponding symbol of the corresponding word in said input keyword string.

The Examiner states:

... Welch in view of Li is directed to "a method for incremental keyword search on a wireless user device" (Welch, Paragraph 0026, i.e., In further embodiments, the broadcast media receiver 10 and/or the wireless terminal 20 are configured to determine whether one or more keywords or other criteria are present in the textual data; Figure 1: 20) and teaches the limitations: "submitting an input keyword string comprising one or more words comprising one or more symbols" (Li, Column 6 Line 10-21, Column 6 Line 40 through Column 9 Line 35); and "receiving in response to said submitting at least one candidate keyword string where a prefix of a word of a matching candidate keyword string comprises at least one symbol that belongs to the same symbol group as the corresponding symbol of the corresponding word in said input keyword string" (Li, Column 8 Line 51 through Column 9 Line 36).²⁹

The Applicant respectfully disagrees. The arguments made above with respect to Claim 18 apply here as well. Claim 18 being allowable, Claim 29 must also be allowable for at least the same reasons.

²⁸ Office Action at pp. 14-15.

Claim 40

Claim 40 recites:

A method for incremental keyword search on a wireless user device, the method comprising:
receiving from a user of said wireless user device an input keyword string comprising one or more words comprising one or more symbols;
creating a bit vector based at least in part on said input keyword string, each bit corresponding to one or more symbols in an alphabet, bits having a bit position corresponding to a prefix of a word in said one or more symbols being set;
comparing said bit vector with one or more other bit vectors representing at least one candidate keyword string to create a set of matching bit vectors;
applying a conventional keyword matching algorithm to said at least one candidate keyword string represented by said set of matching bit vectors; and
presenting any matching candidate keyword strings.

The Examiner states:

... Welch in view of Li is directed to "a method for incremental keyword search on a wireless user device" (Welch, Paragraph 0026, i.e., In further embodiments, the broadcast media receiver 10 and/or the wireless terminal 20 are configured to determine whether one or more keywords or other criteria are present in the textual data; Figure 1: 20) and teaches the limitations: "receiving an input keyword string comprising one or more words comprising one or more symbols" (Li, Column 6 Line 10-21, Column 6 Line 40 through Column 9 Line 35); "creating a bit vector based at least in part on said input keyword string" (Li, Column 6 Line 40 through Column 9 Line 35), "each bit corresponding to one or more symbols in an alphabet, bits having a bit position corresponding to a prefix of a word in said one or more symbols being set" (Li, Column 6 Line 40 through Column 9 Line 35); "comparing said bit vector with one or more other bit vectors representing at least one candidate keyword string to create a set of matching bit vectors" (Li, Column 8 Line 51 through Column 9 Line 36); "applying a conventional keyword matching algorithm to said at least one candidate keyword string represented by said set of matching bit vectors" (Li, Column 9 Line 58 through Column 13 Line 62); and "presenting any matching candidate keyword strings" (Li, Figure 2: Output Final Candidate List 155).³⁰

²⁹ Office Action at p. 15.

³⁰ Office Action at pp. 15-16.

The Applicant respectfully disagrees. The arguments made above with respect to Claim 21 apply here as well. Claim 21 being allowable, Claim 40 must also be allowable for at least the same reasons.

Claim 43

Claim 43 includes limitations similar to Claim 16. Claim 16 being allowable, Claim 43 must also be allowable for at least the same reasons.

Claims 45, 46, 54, 57, 60, and 61

Claims 45, 46, 54, 57, 60, and 61 include limitations similar to Claims 1, 2, 10, 13, 16, and 17 respectively. Claims Claims 1, 2, 10, 13, 16, and 17 being allowable, Claims 45, 46, 54, 57, 60, and 61 must also be allowable.

Claims 62, 65, 68, 69, 70, 71, 72, 73, 76, 79, 80, 81, 84, 87, 89, 90, 98, 101, 104, 105, 106, 109, 112, 113, 114, 115, 116, 117, 120, 123, 124, 125, 128, 131, 133, 134, 142, 145, 146, 147, 150, 151, 152, 153, 154, 155, 158, 159, 160, 163, 165, 166, 174, 177, 178, 179, 182, 183, 184, 185, 186, 187, 190, 191, 192, and 195

Claims 62, 65, 68, 69, 70, 71, 72, 73, 76, 79, 80, 81, 84, 87, 89, 90, 98, 101, 104, 105, 106, 109, 112, 113, 114, 115, 116, 117, 120, 123, 124, 125, 128, 131, 133, 134, 142, 145, 146, 147, 150, 151, 152, 153, 154, 155, 158, 159, 160, 163, 165, 166, 174, 177, 178, 179, 182, 183, 184, 185, 186, 187, 190, 191, 192, and 195 include limitations similar to Claims 18, 21, 16, 25, 26, 27, 28, 29, 32, 16, 36, 87, 40, 16, 1, 2, 10, 13, 16, 17, 18, 21, 16, 25, 26, 27, 28, 29, 32, 16, 36, 37, 40, 43, 1, 2, 13, 16, 17, 18, 16, 25, 26, 27, 28, 32, 16, 36, 40, 16, 1, 2, 13, 16, 17, 21, 16, 25, 26, 27, 28, 32, 16, 36, 40, and 16, respectively. Claims 18, 21, 16, 25, 26, 27, 28, 29, 32, 16, 36, 87, 40, 16, 1, 2, 10, 13, 16, 17, 18, 21, 16, 25, 26, 27, 28, 29, 32, 16, 36, 37, 40, 43, 1, 2, 13, 16, 17, 18, 16, 25, 26, 27, 28, 32, 16, 36, 40, 16, 1, 2, 13, 16, 17, 21, 16, 25, 26, 27, 28, 32, 16, 36, 40, and

16 being allowable, Claims 62, 65, 68, 69, 70, 71, 72, 73, 76, 79, 80, 81, 84, 87, 89, 90, 98, 101, 104, 105, 106, 109, 112, 113, 114, 115, 116, 117, 120, 123, 124, 125, 128, 131, 133, 134, 142, 145, 146, 147, 150, 151, 152, 153, 154, 155, 158, 159, 160, 163, 165, 166, 174, 177, 178, 179, 182, 183, 184, 185, 186, 187, 190, 191, 192, and 195 must also be allowable for at least the same reasons.

The Second 35 U.S.C. § 103 Rejection

Claims 3-9, 47-53, 91-97, 135-141, and 167-173 were rejected under 35 U.S.C. 103(a) as being unpatentable over Li in view of Welch and further in view of Braun.^{31 32} This rejection is respectfully traversed.

Claims 3-9, 47-53, 91-97, 135-141, and 167-173 depend from Claims 1, 45, 89, 133, and 165, respectively, and thus include the limitations of claim 1, 45, 89, 133, and 165. The arguments made above with respect to claim 1 apply here as well. The 35 U.S.C. § 103(a) rejection of claim 1 based on Li in view of Welch is unsupported by the art, as each and every element as set forth in claim 1 is not found in Li in view of Welch. Therefore, the 35 U.S.C. § 103(a) rejection of dependent claims 3-9, 47-53, 91-97, 135-141, and 167-173 based on Li in view of Welch and further in view of Braun is also unsupported by the art. Thus, no prima facie case of obviousness has been established and the 35 U.S.C. § 103 rejection should be withdrawn.

The Third 35 U.S.C. § 103 Rejection

Claims 11-12, 14-15, 19-20, 22-23, 30-31, 33-34, 38-39, 41-42, 55-56, 58-59, 63-64, 66-67, 74-75, 77-78, 82-83, 85-86, 99-100, 102-103, 107-108, 110-111, 118-119, 121-122, 126-127,

³¹ U.S. Patent Application Publication No. 2004/0064787 to Braun.

³² Office Action, ¶ 8.

129-130, 143-144, 148-149, 156-157, 161-162, 175-176, 180-181, 188-189, and 193-194 were rejected under 35 U.S.C. 103(a) as being unpatentable over Li in view of Welch and further in view of Albornoz et al.^{33 34} This rejection is respectfully traversed.

The arguments made above with respect to the independent claims apply here as well. The 35 U.S.C. § 103(a) rejection of claims based on Li in view of Welch is unsupported by the art, as each and every element as set forth in the independent claims is not found in Li in view of Welch. Therefore, the 35 U.S.C. § 103(a) rejection of dependent claims 11-12, 14-15, 19-20, 22-23, 30-31, 33-34, 38-39, 41-42, 55-56, 58-59, 63-64, 66-67, 74-75, 77-78, 82-83, 85-86, 99-100, 102-103, 107-108, 110-111, 118-119, 121-122, 126-127, 129-130, 143-144, 148-149, 156-157, 161-162, 175-176, 180-181, 188-189, and 193-194 based on Li in view of Welch and further in view of Albornoz et al. is also unsupported by the art. Thus, no prima facie case of obviousness has been established and the 35 U.S.C. § 103(a) rejection should be withdrawn.

The Fourth 35 U.S.C. § 103 Rejection

Claims 44, 88, 132, 164, and 196 were rejected under 35 U.S.C. 103(a) as being unpatentable over Li in view of Welch and further in view of Vagonzzi.^{35 36} This rejection is respectfully traversed.

Claim 44

Claim 44 recites:

A method for incremental keyword search on a wireless user device, the method comprising:

³³ U.S. Patent Application Publication No. 2004/0260929 to Albornoz et al.

³⁴ Office Action, ¶ 9.

³⁵ U.S. Patent No. 6,499,033 to Vagonzzi.

³⁶ Office Action, ¶ 10.

receiving from a user of said wireless user device an input keyword string comprising one or more words comprising one or more symbols, each symbol representing the first symbol of a word in a search string;
 receiving a hierarchy, elements of said hierarchy comprising intermediate nodes and leaf nodes representing one or more keyword strings comprising one or more words comprising one or more symbols;
 creating hierarchy bit vectors corresponding to said one or more keyword strings in said hierarchy;
 searching said hierarchy bit vectors for a match with said input keyword string, said searching comprising, for each of said elements of said hierarchy:
 saving said input keyword string;
 applying a logical "AND" operation to the bit vector of the element and a bit vector based at least in part on said input keyword string, said applying producing a result;
 if said result is nonzero, removing from said input keyword string any words in said input keyword string that are prefixes of words in the element;
 if said input keyword string is empty, adding said element to a list of matched items; and
 restoring said input keyword string; and
 rendering said list of matched items.

The Examiner states:

Li in view of Welch is directed to a method for incremental keyword search, the method comprising, receiving an input keyword string comprising one or more words comprising one or more symbols, each symbol representing the first symbol of a word in a search string (Li, Column 8 Line 51 through Column 9 Line 36). However, Li does not explicitly disclose the limitation: "receiving a hierarchy, elements of said hierarchy comprising intermediate nodes and leaf nodes representing one or more keyword strings comprising one or more words comprising one or more symbols" and "searching said hierarchy bit vectors for a match with said input keyword string, said searching comprising, for each said elements of said hierarchy: saving input keyword; applying a logical "AND" operation to the bit vector of the element and a bit vector based at least in part on said input keyword string, said applying producing a result".

On the other hand, Vagonzzi teaches a database method and apparatus using hierarchical bit vector index structure comprising: "receiving a hierarchy, elements of said hierarchy comprising intermediate nodes and leaf nodes representing one or more keyword strings comprising one or more words comprising one or more symbols" (Vagonzzi, Figure 2, Column 5 Line 44 through Column 6 Line 10, i.e. "The indexes 30 are actually collections of keys stored in a Btree.");

"creating hierarchy bit vectors corresponding to said one or more keyword strings in said hierarchy" (Vagonzzi, Figure 2, Column 5 Line 44 through Column 6 Line 10, i.e. "The indexes 30 are actually collections of keys stored in a B-tree."););

"searching said hierarchy bit vectors for a match with said input keyword string" (Vagonzzi, Column 10 Line 40 + , i.e. "Query Processing the Indexes"), "said searching comprising, for each of said elements of said hierarchy: saving said input keyword string; applying a logical "AND" operation to the bit vector of the element and a bit vector based at least in part on said input keyword string" (Vagonzzi, Column 11, Line 1-27, i.e. " then searches the appropriate index for those target keys, starting with the lowest key.....), "said applying producing a result" (Official Note: a search always returns a result); "if said result is nonzero, removing from said input keyword string any words in said input keyword string that are prefixes of words in the element" (...If no key is found, a bit vector of all zeros is returned. If a matching key is found in the index, then the associated link is used to obtain a bit vector for that key...."); "if said input keyword string is empty, adding said element to a list of matched items" ((...If no key is found, a bit vector of all zeros is returned. If a matching key is found in the index, then the associated link is used to obtain a bit vector for that key...."); and "restoring said input keyword string; and rendering said list of matched items" (Vagonzzi, Column 11, Line 127). ...

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the method and system which employ both bit vectors and a tree hierarchy as taught by Vagonzzi with the method and system of Welch in view of Li so that the combined method and system would accommodate bit vectors in a tree hierarchy and logical searches into the trees could be performed. One would have been motivated to do so in order to "provide a method and apparatus for managing large amounts of data in a manner that provides the following benefits: 1. Very fast query response; 2. Fast Update response; 3. Support for " (Vagonzzi, Column 3, Line 7-26).³⁷

The Applicant respectfully disagrees. Contrary to the Examiner's statement, Li in view of Welch and further in view of Vagonzzi does not disclose or suggest receiving from a user of said wireless user device an input keyword string comprising one or more words comprising one or more symbols, each symbol representing the first symbol of a word in a search string. The arguments made above with respect to Claim 32 apply here.

Also contrary to the Examiner's statement, Li in view of Welch and further in view of Vagonzzi does not disclose or suggest said searching comprising, for *each* of said elements of said hierarchy ... saving said input keyword string. In support of the Examiner's contention, the Examiner refers to the following portion of Vagonzzi:

Query processing is implemented by computer 52 by way of microprocessor 54 executing instructions from database management program 64. Program 64 locates the one or more records that satisfies a particular user query by creating a target keys (e.g., c:0:blue) for each coarse and fine slice and then searches the appropriate index for those target keys, starting with the lowest key valued key (i.e., coarse slice 0). If no key is found, a bit vector of all zeros is returned. If a matching key is found in the index, then the associated link is used to obtain a bit vector for that key. If the link is of type 0, as shown in FIGS. 8 and 9, then the bit vector identified by the link is returned. Where one or both of the keys' links are of type 1; that is, they contain a relative fine slice number (in the case of a coarse key) or a relative record number (in the case of a fine key) rather than a pointer to a bit vector, then a bit vector is created and, for a fine bit vector, the bit corresponding to the record identified by the link is set to one and the remaining bits of the vector being cleared to zero. When creating a coarse bit vector (which includes both ANY bits and ALL bits), the ANY bit corresponding to the fine slice number identified by the link is set to one, with the remaining ANY bits being cleared to zero, and the ALL bit corresponding to the fine slice number identified by the link is set to the same value (0 or 1) as the ALL bit contained in the link, with the other ALL bits being cleared to zero. In this way, query processing can always be carried out using bit vectors, regardless of which type of link is stored in the index.³⁸

Nowhere does the cited portion of Vagonzzi disclose for each of said elements of a hierarchy, saving an input keyword string.

Also contrary to the Examiner's statement, Li in view of Welch and further in view of Vagonzzi does not disclose or suggest said searching comprising, for *each* of said elements of said hierarchy ... applying a logical "AND" operation to the bit vector of the element and a bit vector based at least in part on said input keyword string. Nowhere does the cited portion of Vagonzzi disclose for each of said elements of a hierarchy, applying a logical "AND" operation to the bit vector of the element and a bit vector based at least in part on an input keyword string.

Also contrary to the Examiner's statement, Li in view of Welch and further in view of Vagonzzi does not disclose or suggest said searching comprising, for *each* of said elements of said hierarchy ... if said result is nonzero, removing from said input keyword string any words in

³⁷ Office Action at ¶ 10.

³⁸ Vagonzzi at col. 11 ll. 1-27.

said input keyword string that are prefixes of words in the element. Nowhere does the cited portion of Vagonzzi disclose for each of said elements of a hierarchy, if a search result is nonzero, removing from an input keyword string any words in the input keyword string that are prefixes of words in an element.

Also contrary to the Examiner's statement, Li in view of Welch and further in view of Vagonzzi does not disclose or suggest said searching comprising, for *each* of said elements of said hierarchy ... if said input keyword string is empty, adding said element to a list of matched items. Nowhere does the cited portion of Vagonzzi disclose for each of said elements of a hierarchy, if an input keyword string is empty, adding the element to a list of matched items.

Also contrary to the Examiner's statement, Li in view of Welch and further in view of Vagonzzi does not disclose or suggest said searching comprising, for *each* of said elements of said hierarchy ... restoring said input keyword string. Nowhere does the cited portion of Vagonzzi disclose for each of said elements of a hierarchy, restoring an input keyword string.

Claims 88, 132, 164, and 196

Claims 88, 132, 164, and 196 include limitations similar to Claim 44. Claim 44 being allowable, Claims 88, 132, 164, and 196 must also be allowable for at least the same reasons.

In view of the foregoing, it is respectfully asserted that the claims are now in condition for allowance.

Conclusion

It is believed that this Amendment places the above-identified patent application into condition for allowance. Early favorable consideration of this Amendment is earnestly solicited.

If, in the opinion of the Examiner, an interview would expedite the prosecution of this application, the Examiner is invited to call the undersigned attorney at the number indicated below.

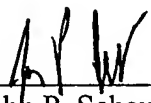
The Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Please charge any additional required fee or credit any overpayment not otherwise paid or credited to our deposit account No. 50-1698.

Respectfully submitted,

THELEN REID BROWN
RAYSMAN & STEINER LLP

Dated: March 19, 2007



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